



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
29.11.2023 Bulletin 2023/48

(43) Date of publication A2:
27.09.2023 Bulletin 2023/39

(21) Application number: **23163197.9**

(22) Date of filing: **21.03.2023**

(51) International Patent Classification (IPC):
F04D 19/00 ^(2006.01) **F04D 25/06** ^(2006.01)
F04D 25/08 ^(2006.01) **F04D 29/60** ^(2006.01)
F04D 29/70 ^(2006.01) **A01G 20/47** ^(2018.01)

(52) Cooperative Patent Classification (CPC):
F04D 19/002; **A01G 20/47**; **F04D 25/0673**;
F04D 25/084; **F04D 29/602**; **F04D 29/703**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(30) Priority: **21.03.2022 US 202263321899 P**
14.04.2022 US 202263330883 P

(71) Applicant: **Milwaukee Electric Tool Corporation**
Brookfield, WI 53005 (US)

(72) Inventors:
• **HERRERA, Nathaniel A.**
Oak Creek, 53154 (US)

- **CZERWONKA, Adam F.**
Mukwanago, 53149 (US)
- **JENKINS, Marcus**
Wauwatosa, 53226 (US)
- **BARTLETT, Shannon C.**
Cedarburg, 53012 (US)
- **WHEALON, John L.**
West Bend, 53095 (US)
- **SCHLOSSER, Drake J.**
West Bend, 53095 (US)

(74) Representative: **Forresters IP LLP**
Skygarden
Erika-Mann-Straße 11
80636 München (DE)

(54) **BATTERY POWERED AXIAL BLOWER**

(57) An axial blower includes a fan, housing, and intake grate. The fan has a rotational axis. The housing surrounds the fan. The housing includes an inlet, fluid intake volume, outlet, and battery interface. The inlet is disposed at a position along the rotational axis upstream of the fan. The fluid intake volume is upstream of the inlet. The outlet is disposed at a position along the rotational axis downstream of the fan. The distal projection extends

away from the inlet in an upstream direction. The battery interface is coupled to the distal projection, upstream of the inlet, and suspends a battery pack in the fluid intake volume. The intake grate is positioned between the fluid intake volume and the inlet. The intake grate permits fluid flow between the fluid intake volume and the inlet. The fluid intake volume is unobstructed between the battery interface and the intake grate.

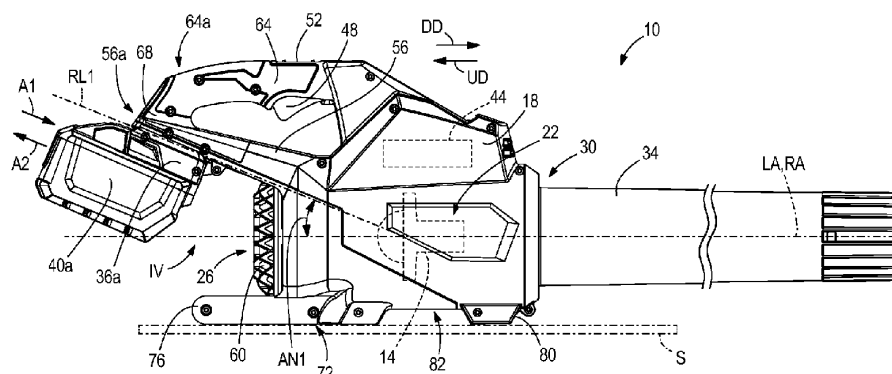


FIG. 1



PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 23 16 3197

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2018/140146 A1 (ZHU QIPENG [CN] ET AL) 24 May 2018 (2018-05-24) * paragraphs [0023] - [0039] * * figures 1-5 *	1-4	INV. F04D19/00 F04D25/06 F04D25/08 F04D29/60 F04D29/70 A01G20/47
X	US 2020/214229 A1 (YAMAOKA TOSHINARI [CN] ET AL) 9 July 2020 (2020-07-09) * paragraphs [0073] - [0077] * * figures 1-5 *	1-4	
A	US 2011/197389 A1 (OTA TOMOYUKI [JP] ET AL) 18 August 2011 (2011-08-18) * claims 19, 24, 28 * * figures 2-4 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			F04D A01G

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

2

Place of search	Date of completion of the search	Examiner
The Hague	24 October 2023	Gombert, Ralf
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

EPO FORM 1503 03.82 (P04E07)



INCOMPLETE SEARCH
SHEET C

Application Number

EP 23 16 3197

5

10

15

20

25

30

35

40

45

50

55

Claim(s) completely searchable:

1-4

Claim(s) not searched:

5-15

Reason for the limitation of the search:

In response to the invitation to indicate the claims to be searched pursuant to Rule 62a(1) EPC the applicant requested independent 1 and its dependent claims 2 to 4 to be searched.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 23 16 3197

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-10-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2018140146 A1	24-05-2018	NONE	
US 2020214229 A1	09-07-2020	US 2020214229 A1	09-07-2020
		WO 2019062279 A1	04-04-2019
US 2011197389 A1	18-08-2011	CN 102812612 A	05-12-2012
		DE 202011110568 U1	09-10-2014
		EP 2534745 A1	19-12-2012
		JP 5461221 B2	02-04-2014
		JP 2011161602 A	25-08-2011
		RU 2012138951 A	27-03-2014
		US 2011197389 A1	18-08-2011
		US 2013164589 A1	27-06-2013
		US 2015333301 A1	19-11-2015
		US 2017125754 A1	04-05-2017
		US 2020127251 A1	23-04-2020
		US 2023238806 A1	27-07-2023
		WO 2011099349 A1	18-08-2011